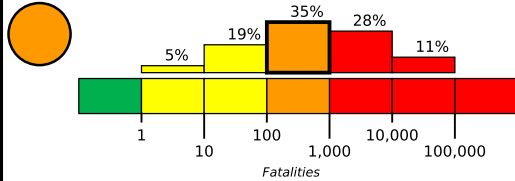


M 5.9, 57km NE of Hashtrud, Iran

Origin Time: 2019-11-07 22:47:05 UTC (Fri 02:17:05 local)
Location: 37.8075° N 47.5577° E Depth: 10.0 km

Created: 10 hours, 15 minutes after earthquake

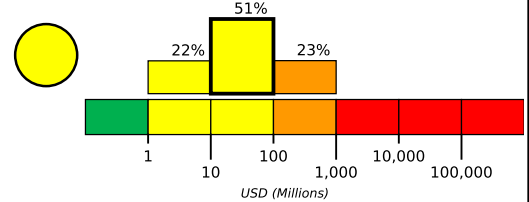
Estimated Fatalities



Orange alert for shaking-related fatalities. Significant casualties are likely and the disaster is potentially widespread. Past events with this alert level have required a regional or national level response.

Yellow alert for economic losses. Some damage is possible. Estimated economic losses are less than 1% of GDP of Iran.

Estimated Economic Losses

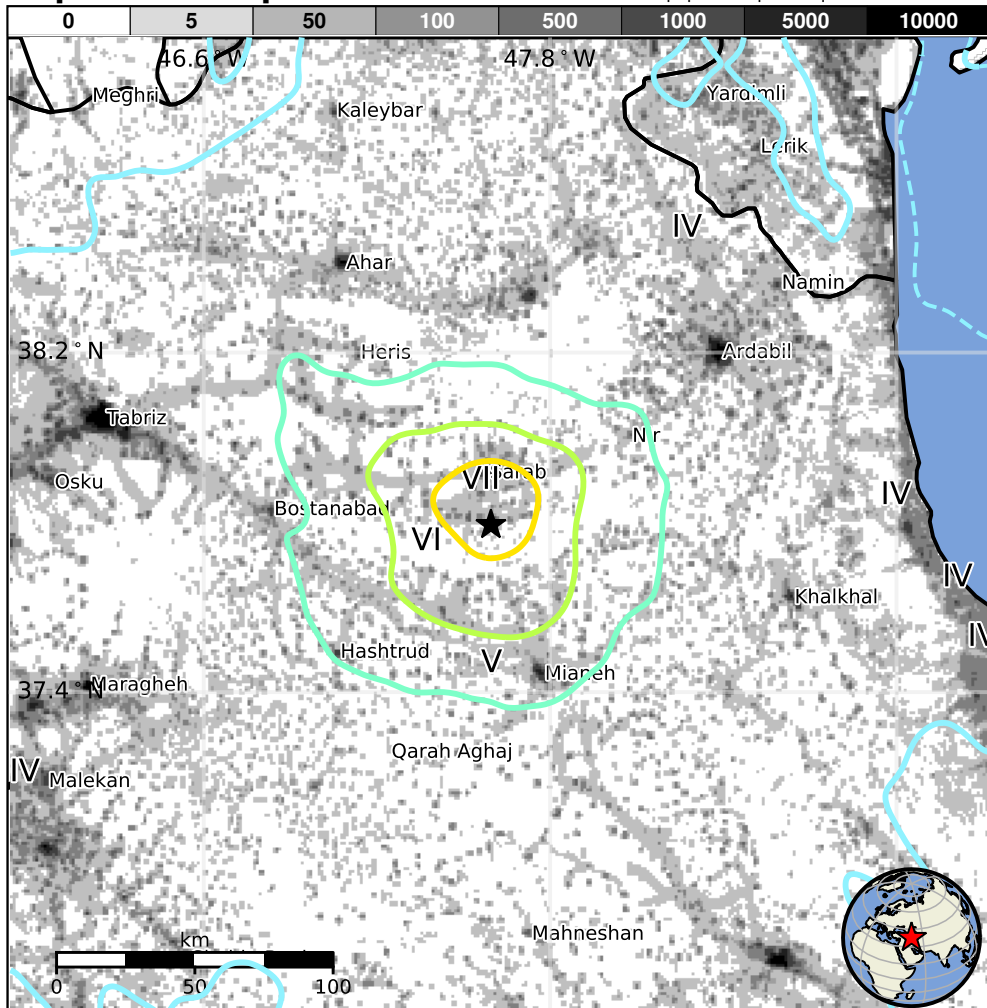


Estimated Population Exposed to Earthquake Shaking

| ESTIMATED POPULATION EXPOSURE (k=x1000) | | —* | 204k* | 5,113k* | 1,319k | 73k | 76k | 6k | 0 | 0 |
|---|-----------------------|----------|--------|---------|----------|----------|-------------|------------|----------|----------|
| ESTIMATED MODIFIED MERCALLI INTENSITY | | I | II-III | IV | V | VI | VII | VIII | IX | X+ |
| PERCEIVED SHAKING | | Not felt | Weak | Light | Moderate | Strong | Very Strong | Severe | Violent | Extreme |
| POTENTIAL DAMAGE | Resistant Structures | None | None | None | V. Light | Light | Moderate | Mod./Heavy | Heavy | V. Heavy |
| | Vulnerable Structures | None | None | None | Light | Moderate | Mod./Heavy | Heavy | V. Heavy | V. Heavy |

*Estimated exposure only includes population within the map area.

Population Exposure



Structures

Overall, the population in this region resides in structures that are highly vulnerable to earthquake shaking, though some resistant structures exist. The predominant vulnerable building types are adobe block and low-rise nonductile concrete frame with in-fill construction.

Historical Earthquakes

| Date (UTC) | Dist. (km) | Mag. | Max MMI(#) | Shaking Deaths |
|------------|------------|------|------------|----------------|
| 1997-02-28 | 52 | 6.1 | VIII(3k) | 1k |
| 1976-11-24 | 338 | 7.0 | IX(33k) | 4k |
| 1990-06-20 | 171 | 7.4 | IX(83k) | 45k |

Recent earthquakes in this area have caused secondary hazards such as landslides that might have contributed to losses.

Selected City Exposure

from GeoNames.org

| MMI | City | Population |
|-----|----------|------------|
| VII | Sarab | <1k |
| V | Mianeh | <1k |
| V | Nir | <1k |
| V | Tabriz | 1,425k |
| V | Hashtpar | 45k |
| V | Hashtrud | 17k |
| IV | Ardabil | 411k |
| IV | Zanjan | 357k |
| IV | Astara | 15k |
| IV | Lankaran | 240k |
| IV | Masally | 10k |

PAGER content is automatically generated, and only considers losses due to structural damage. Limitations of input data, shaking estimates, and loss models may add uncertainty.
<https://earthquake.usgs.gov/earthquakes/eventpage/us600068w0#pager>

bold cities appear on map.

(k = x1000)

Event ID: us600068w0